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OF THE

SCIENCE OF ELECTROPLATING

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CONVENTION NOTICE
King Edward Hotel
June 25, 26, 27, 28, 1928
Ha, Ha! Skinney Wada say
Convention today
Down Toronto way.

MONTHLY REVIEW

Published by the

American Electroplaters Society

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VOL. XV FEBRUARY, 1928 No. 2

EDITORIAL

Why are so many of our members content to ENVY the success of others, when they can, by a little effort, achieve it THEMSELVES. Every Plater knows that an OUNCE of Performance is worth a TON of Complaint, and your employer measures your VALUE and success in CANS not Can'ts.

Being posted in work that your're doing and interested in the welfare and progress of the SOCIETIES, that represent your industry in gathering and compiling all the data and latest methods of plating, make you valuable not only to your own employer, but also to the community in which you live, because they recognize that you are not a drone in the beehive of this swift era of progress, and you will be rewarded, if not in money, at least in happiness cranked by the knowledge that the world was benefited some by you having been in it. Neglect of all these things for the pleasure and willingness to just go along and let George do it causes trouble and does not need to be cranked, it is self started.

It is a pleasure to know that the many different branches of our society have, and are starting more each year, classes for the platers to take up chemical teachings, some along lines as promoted by our public school boards and many special courses tutored by specialists for just such of our members who do not feel that they can afford time required to obtain thorough training in this study, but withal either will afford the present day plater executive to retain his place in the industry when coupled with his many years of experience if

HE WILL APPLY HIMSELF and do the same as he does with his bank savings, GET THE INTEREST, not semi-annually, but DAILY.

We not only urge but appeal to you pioneers of this society to keep going and naught can stop or impede your progress. You made a real stride in your industry at the institution of this society; you made further progress when you joined this society, and now, dear members, to make more complete the cycle of progress you have started, from the era of DARKNESS, PUBLISH many of the things that you have accomplished since the light of association and education has begun to shine in your respective plating rooms.

Last, but not least, brothers, write and write, not for personal edification or to advertize, but to help the industry, more especially the members of this society, the MONUMENT that will preserve your memory and be a living TESTIMONIAL to your offspring and heirs that you were a SUCCESS, at least in the business, you earned your tire in during your material existence. Let's give to our successors in this GREAT trust, the permanent knowledge: You can't do the right thing the wrong way.

A LITTLE TALK ON THE SPOTTING-OUT QUESTION

N. E. Zadowski, Cleveland Branch

I had at my work some very serious trouble in regard to spotting-out of oxidized copper finish.

I am so glad that I have this difficulty licked that I feel it my duty to tell here my experience, so that somebody else may profit by it, too.

We are manufacturing all kinds of builder's hardware, especially door lock sets. When I came here over four years ago, everything went nice and satisfactory; then about eighteen months ago my trouble started.

Steel door knobs and escutcheons showed spots, such as described in Mr. Barrow's recent report. Work was sent back to plating room in large quantities. I had the lacquer taken off with lacquer remover, the spots came off with the lacquer and work could be lacquered right over again. This happened ever so often; I had found the remedy as stated, but could not find the cause.

I tried four different kinds of oxidizing mediums, all of them would bring the same spots. I gave some steel escutcheons to different platers here in town—same result after they came to our shop.

Then one day one of my friends brought a few of the escutcheons to my residence; I forgot to take them to the shop—and these did not spot out.

Now I had a clew for further experiments. I took a lot of escutcheons, hung them all over the shop in different rooms, and there I found that the spotting-out only happened in certain sections of the buildings.

By investigating this occurrence deeper and going to the bottom of it, I found the cause.

The management had combined two departments, and were sulphuring shanks into porcelain door knobs in the same room, where the finished work was assembled. In all rooms on the same floor and in two rooms above, where sulphur fumes could rise through dumb-waiter shafts, the oxidized copper finish showed the spots, the escutcheons in the rest of the buildings, where the air is pure were O.K.

We removed the sulphur pots into another—far away—part of the building, connected the fume draughts into the chimney.

AND ALL OUR TROUBLE HAS GONE.

THE USE OF CADMIUM PLATING PREPARATORY TO SILVER PLATING

By Jas. Welsby, Toronto Branch

In presenting my experiences of above subject, I am going to endeavour to create a healthy discussion on use of cadmium plating on all metals, instead of using universally used methods, before silver plating. I have used above method for the past 18 months with excellent results, on all classes of work fabricated of the many different metals known in the silver-plating profession. We all know, that most metals, that it is desirable to plate with silver are electro-positive to this metal, in cyanide solutions. The result is that special methods are used in plating these metals with silver, or the silver bath is decomposed—and the object to be plated is spoiled by a very poor adherent coating of silver, deposited by immersion which peels off by scratch brushing or merely rub-

bing with the fingers. Some metals, such as copper, brass and German silver, are given a mercury cyanide dip as a preliminary operation before silver plating again, other metals are first copper flashed or struck and then struck in the nickel bath, from there passed through one or two silver strikes, before silver plating, with the cadmium bath the object, regardless of the metal of which it is made, is given a light coating of cadmium, rinsed quickly and thoroughly and placed directly in the silver bath, run with a E.M.F. of 4-5 volts for 15 seconds, then reduced to the regular voltage for silver plating. I have plated all classes of work composed of all kinds of metals in this manner. The work referred to in this paper is all job work and is giving perfect satisfaction. The main point is this. I would like to have the opinions and experiences of our fellow members on this subject, if any member has used this method. If any member used it and discarded it, and why, he did so. Also whether it would be an advantage as a time saver, as it cuts out so many preliminary operations. The solutions used are as follows:

NaCN	4½ ozs.	per gallon
(AgCN)	3½ ozs. T	

The cadmium plating solution—

Cadmium Oxide	CdO	4¼	ozs.
Sodium Cyanide	NaCN	10	ozs.
	H_2O	1	gallon

THE CHROMIUM SITUATION FROM A PRACTICAL PLATER'S VIEWPOINT

By E. G. Lovernug, Detroit Branch

The growing use of chromium as an electro plated coating for metals has developed a situation which merits the study of all platers and industrial executives, to the end that a better understanding may be had of the possibilities and limitations of chromium plating.

The manufacturer of plated goods is attracted to this subject by the several highly desirable qualities of electro-deposited chromium and by its apparent advantages over nickel. That these qualities and advantages should be exploited commercially is to be expected, as witness the numerous announcements in recent months of firms entering the field of commercial chromium plating by patent processes.

As is usual in such cases, the processes are offered for industrial use under licensing plans, which is entirely regular and justified. The only unfortunate feature is that in the promotion of such plans, advertising is used which emphasizes the desirability of chromium plating, without indicating the limitations imposed by technical difficulties. Whereas, this advertising would convey the idea that the deposition of chromium is as universally practicable as the deposition of nickel. It is generally known among electroplaters, who have had experience with both, that there are many cases where chromium plating is not practicable. Until this fact is made clear to the manufacturer, the plater will be discredited for not producing results which the manufacturer has been led to expect by the chromium plating processes.

An article appeared in one of the trade journals saying that chromium was cheaper to produce than nickel plating, then the article goes on and says that the parts are first nickel plated and buffed, then chromium plated. The plater of a large production unit is placed in a difficult position with his factory manager, who reads this sort of misleading publicity. The factory manager in turn meets with difficulties in quoting prices for chromium-plated articles to his respective customers.

The modern experimenter on chromium plating has been very exuberant, patents have been taken out and applied for, covering most every angle of the process. A patent for preparing the work for plating, patents for covering soluble and insoluble anodes, alloys, a patent for depositing chromium over a nickel-polished surface, have been applied for. At the Michigan State College, a bottle of a chemical was accidentally spilled into the chromium bath and the results proved so astonishing to them, that I understand, they have applied for patents.

Several lectures have been given in Detroit by well-known men in the electro-plating and chemical field but when the practical plater has tried to get any concrete information, he finds himself up against skillful avoiders, wonderful sidestepping of the issue. No direct questions by platers would be answered. They simply have something to sell and they have spread their propaganda among the purchasing agents, general managers, and factory superintendents, so that a

plater of a large production plant finds himself between the devil and the deep sea. There are several places in Michigan doing chromium plating, but the plating department where the work is being done, is locked and a "No admittance" sign is on the door. It is understood platers have been instructed not to attend their branch meetings for fear they might be asked questions.

Now what effect is this attitude of the electro-chemist going to have on our society? Is it going to drive the practical plater into his shell where he was before this society was founded? Is he going to start commercializing and take out patents himself or are we going to combat this evil collectively?

Back in 1915, H. E. Williams, in the Review says that electro-plating was not developed in its present state of efficiency by one or a dozen investigators, it was developed by hundreds of men working along similar lines and making notes of conditions as they arose, and solving problems connected with their work that gave to the world and the present day electro-plater the solutions he is working with and made it possible for him to turn out the work he is turning out today. The different branches bearing this in mind should invite their members to discussion of the various problems and when intelligent conclusions have been reached to send them to the review for publication so that all the members may be benefited thereby and not as some, keeping their knowledge to themselves for fear others would know as much as they claim to. That sort of spirit should be condemned for its narrow mindedness and not in keeping with the spirit of this society.

Again in 1915, H. J. Richards says that if a man desired to obtain the most for himself he should know that his share of common good is greater than any possible good he could obtain for himself alone.

In 1919, Walter Fraine said as we look back over the past ten years and contrast the conditions prevailing at that time with those of the present, every one of us realizes that an immense improvement has taken place in processes and methods and it has been acomplished largely by the thought and work of this society. Each new process and method used has been placed at the disposal of all our members, and I

could go on and quote from editorials taken from the Review and written by able men of our society. So let us protect the foundation upon which this society is built and combat this evil of so-called patents and control of the electro-plating industry.

I heartily agree with Mr. Proctor, who in his recent article said: "I believe in patents, that are patents that result from honest labor and untold hours of investigation but not in fraction of a percent of the patents granted in the U. S. that are worthless."

The chemist needs the assistance of the practical plater and the plater needs the cooperation of the chemist to put chromium on a workable productive basis.

We have had papers and lectures on chromium at our annual conventions for the past five years and up to the present time there has been no decided improvement as far as we know in regarding to conductivity throwing power over the Sargents or Bureau of Standards process. This is, I believe, due to the fact that the holders of chromium patented processes have devoted most of their time in propaganda and secrecy instead of cooperating with the practical plater to help overcome the many mechanical as well as chemical difficulties which arise in chromium plating on a large scale. A number of firms are holding back from installing chromium equipment in their plants for fear of litigation. This situation is retarding the progress of commercial chromium plating and we as a society who have the electro-plating industry at heart should find some means to combat it.

The situation in the large automobile accessory manufacturer in the middle west have become chaotic, the demand for chromium-plated parts is heard everywhere and the average plater finds himself unequal to meet the emergency, as many of the so-called, patented processes have proved inadequate.

We are doing chromium plating on automobile lamps, using our own process which we have worked out to fit our own class of work and we haven't found it necessary to lock the plating room door with the "No admittance" sign. Our experience has showed us that there are two methods at present to produce chromium productively, when a high finish is desired. One is a bright flash deposit, as Mr. Proctor so ably calls it, a sort of metal lacquer, and the dull deposit, from

five to thirty minutes and buffed afterwards. You can get both the results from the same electrolyte according to temperature and current density, but there are other factors that are equally important to success and in some cases are more important than the electrolyte used. Racking of the work is most important, hooks must be large enough to carry the high current density used, from two to four hundred amperes per square foot. Hooks and racks should be insulated to prevent shading. An equal distribution of anode surface is most important, contact points should be secured to prevent arcing. When the flash deposit is used we have found it more practical to use several small units instead of one large tank. For instance, an equipment used for automobile bumpers and radiator shells would be impractical for lamp rims and lamp bodies, productively speaking. We find that we can control our small units with better success than one out of proportion to the work being plated.

We have several small units consisting of an electro cleaning tank, two cold water rinse tanks, one muriatic acid dip, one bright nickel strike tank, one cold water rinse, two steel tanks 24x24x24 inches for the chromium, two hot-water rinse, complete the unit. This unit will turn out 1,500 lamp doors per day. To increase our production, we simply increase our individual units. The rims are first racked, two on a rack, then electro cleaned, rinsed, struck in the bright nickel strike from 3 to 5 minutes, rinse in cold water, as we have an operator at each cromium tank, they take the work from the cold-water rinse, hang it in the chromium tank for one minute and take it out and hang it in the hot-water rinse. It is surprising how well this bright flash deposit stands up. We have lamps plated this way that have been in service ten months and they look just as good as when first put out. The large lamp bodies are given a heavier nickel deposit then buffed to a high luster and chromium plate by the flash method. Heavier deposits are run from 5 to 10 minutes then buffed with green rouge and colored with lime.

Buffing costs on chromium are high compared with nickel coloring. Although chromium can be buffed to a high finish it does not compare with the bright flash deposit. Chromium can be deposited directly upon the brass or copper base but we prefer the nickel strike, but great care must be exercised in

getting a good adherent deposit of nickel upon the base metal or it will have a tendency to lift or peel in the chromium tank.

Our chromium solution: 33 ounces chromic acid, 1½ ounces chromic sulphate, ¼ ounce carbonate of nickel, water 1 gallon. We have been able to get the most consistent results with carbonate of nickel added at the proper time. Chromium carbonate we find has a tendency to lift and blister the deposit. Iron chromate leaves a sludge of iron hydroxide at the bottom of the tank, and as we use a tank for the anode this sludge acts as an insulator.

We are chromium plating productively and our results are due to our own research, and if our humble efforts will be of any assistance to the members of this society, they are entirely welcome to it.

NOTICE

Electro-Plating Conference, Bureau of Standards, Washington, D. C., Friday, March 2, 1928

This Conference is open to all persons interested in Electro-Plating Problems.

If you intend to attend this Conference, kindly let Dr. Blum of Bureau of Standards, know that reservations for lunch that day may be made.

CONTROL INSTRUMENTS FOR THE PLATER

By C. Kocour, Chicago Branch

The plater of today is in a period of transition. His profession is changing from an art to a science and as it does so the plater finds himself in the same predicament that other men have found themselves in under similar circumstances, that is, he finds himself in need of scientific control. Therefore, the modern plater now turns to means for controlling the varying factors upon which his results depend. Years ago a rheostat in series with his plating tank was the only control a plater had. By the results he obtained he adjusted, to the best of his ability, the other factors of his solution. Today a plater knows, or can very easily find out, the best conditions under which to operate his solutions. Thus for a certain type of work he knows what solution will have the proper throwing power, at what metal content it should be worked, and at what pH he will obtain the best results. He knows, or can find out, at what temperature the solution operates best and what current density will give more efficient results. Little good all this information would be to the plater if he had no means to determine the condition of his solutions so that he might bring them to the condition he wanted them in. Solutions are constantly changing in their properties so the plater is continually faced with the task of controlling them. For this reason chemical control has entered the plating room. Few places have chemical laboratories available to the plater. The average plater has not the time, apparatus nor training to conduct all the analysis both physical and chemical that would be necessary for the complete control of his solutions. Therefore, there grew a need for instruments that would give to the plater a rapid and accurate method of determining various factors of his plating solutions.

It had been known for a long time that the degree of acidity of a nickel solution, for instance, was of great importance for good results. A crude method of determining this factor was litmus paper but this did not suffice, however, it served its purpose in want of something better. As titration did not measure the pH or degree of acidity there was need for some type of instrument that would accomplish this. The physical apparatus for determining the pH was far too technical for the ordinary individual to operate and too costly to install. As a result two H-Ion comparators or pH testers were developed. By the use of these

very inexpensive instruments a plater could very quickly and economically determine the pH of his nickel solutions and if in error promptly correct them. The Bureau of Standards has worked out data giving the best operating pH for nickel solutions. The pH of acid zinc solutions can be tested in the same manner. The acidity of the acid copper plating solution is so high that it is impractical to try to control this solution by means of its pH. An instrument, therefore, has been developed which not only determines the acid present but also the metal in solution, both determinations being rapid and to the accuracy necessary. Cyanid solutions must still be controlled by chemical analysis as no instruments have as yet been developed for their easy control.

The metallic nickel in plating solutions, has been, in times past, controlled by the periodic analysis of the solution either by the electrolytic or titration methods. The former method was long and required an appreciable investment in apparatus. The results obtained, however, were, if properly executed, highly accurate. The titration method for nickel while rapid and giving good results required the necessity of standardizing solutions, more a chemist's job than a plater's. As a result the nickel comparator was developed. This instrument takes advantage of the fact that the green color of nickel solution is directly proportional to the nickel present. By comparing a portion of the solution of standard solutions of non-changing intensity the amount of nickel can thus be very rapidly determined.

The purpose of all types of comparators is to give the plater the results he is after in the shortest time, the results to be at least as accurate as is necessary for the proper control of his solutions.

Another type of control instrument is the Heil Foot Ammeter, an instrument that directly measures the current density per square foot either at the anode or cathode. Previous to this a plater could be watching his ammeter and time and determine the approximate metal deposited, he could not, however, determine the current density per square foot of cathode. The use of this instrument makes this possible.

Another instrument recently placed on the market, while not exactly a control instrument, is of considerable interest to the research plater, that is the Haring Cell. This instrument was developed by Mr. H. E. Haring of the U. S. Bureau of Standards and determines the physical properties of any type of solution. The conductivity of resistance of a solution can be determined and

changed if necessary. Similarly the anode and cathode polarization can be determined. Further the throwing power of any solution can be measured and given a definite value for comparison.

The control of Chromium solutions can be carried out chemically to determine the amounts of the ingredients present. However, a hydrometer can very well be used to determine to chromic acid present as the other ingredients present are there in so small an amount that their effect on a hydrometer reading would be negligible. Probably more important than the chemical control of chromium solutions is the control of the temperature, current density, etc. Probably as the knowledge of chromium plating increases, instruments will be developed to help in the control of these solutions.

Plating room control instruments, whatever be their nature, ammeters or comparators, are of no value unless regularly used. The plater who goes along without them for years is apt to use them only occasionally or whenever there is trouble. The greatest value by far of these control instruments is the *prevention* of trouble. Moreover they prevent running the solution in an inefficient manner for it is a known fact that many solutions can be run without the least bit of trouble and yet these same solutions are operating quite inefficiently. The regular use of control instruments puts the plating department on a more scientific basis and the work accomplished by the department more likely to be uniform and fault free. The chemist can never replace the practical plater as long as the latter can make full use of the tools science has made available for him.

A FEW NOTES ON MODERN LAC FINISHING

By Dr. Brevas, Waukegan Chemical Co.

"Without question, you platers are more familiar with the application of clear lacquers over plated finishes than we lacquer men are. In many cases, it has been due to suggestions and cooperative work with you that many needed modifications have been made on such lacquers.

"Rather then, let us discuss the spray lacquer finishes which are now so much in vogue on many different surfaces, such articles as desk sets, radio cabinets and reproducers, hardware, candlesticks, bird cages, floor lamps, and practically all novelty furniture.

"Some of these are sprayed with lacquer enamel. Some are

done in various spray bronze effects. Some in the special finishes such as Brevokrak and stillpel. In all of these cases, the finisher has an almost endless range of colors at his command, which may be combined into many combinations of great charm and utility.

"Most so-called plating and japanning shops are not platers and japanners really, but finishing shops that do the various kinds of work I have **just** mentioned. They are doing very well with it. These platers find that this type of work fits in well with their regular work, increases the applications of their regular plating work and adds a tidy source of revenue.

"I have in mind particularly, one rather large plating shop which has had unusual success in this direction. They have found that the lacquer finishing fits in well indeed with their everyday plating work.

"Before we proceed further with this type of finish, let us spend a few moments with your old stand-by, Silver Lacquer. This is the finest metal lacquer that the lacquer manufacturers can produce. Its requirements are: That it shall produce an exceptionally adhesive thin film. There must be absolutely no solid particles left in this lacquer by the manufacturer. It must be water-white and the film produced must not become brittle or yellow with age. Raw materials used for this lacquer are the finest white gums—the purest doubly clarified solvents, and the best grade of long fibre, high viscosity nitrated cotton. The compounding must be such that exactly the right proportions of each are used to get the desired results.

"I mentioned high-viscosity cotton. You have probably heard so much talk about low and high viscosity cotton, that I think it is worth while here to spend a little time discussing it.

"Generally speaking, nitrocellulose is produced from thoroughly cleaned and washed cotton linters, which have been treated with a mixture of sulphuric and nitric acids. This treatment renders the formerly insoluble cotton, soluble in such solvents as amly acetate, butyl acetate, and other like solvents. By special treatment, it is possible to change the physical nature of this nitrocellulose, or as we term it—'cotton,' so that solutions made with the different kinds vary greatly in their properties. Thus, a solution of one type, the

high viscosity, made by dissolving one pound of it in one gallon of solvent, gives a solution which is very viscous, or as you would term it, has a heavy body, while one pound of another type of cotton that is low viscosity dissolved in a gallon of the same solvent produces a solution that is rather thin. The conclusion to be drawn from this is that the physical body as you see it has no relation to solid content. It is the solid content which determines how thick a film you get on your work. As mentioned before, the best representative of the high viscosity lacquer is silver lacquer, while the automobile and furniture lacquers and lacquer-enamels are made on low viscosity base.

"Now to get back to the lacquer finishes I mentioned before. Plated finishes, by their very nature, have a very large and important place to fill, and due to constant research and plant control, this field is being ever widened, yet there is a great demand today for bright, attractive colors. This is in keeping with our general cheerful outlook and desire for stimulating surroundings. In many homes there are one or more rooms in which by the simple matter of a re-decorating in a new color, or having the furniture gone over in a fitting color scheme you change the entire atmosphere. The very nature of the people living in these rooms will be altered by these surroundings. You have all seen a simple illustration of this influence of color in the behavior of a bull towards a red object. This is just one illustration of the effect of this particular color. It has the same exciting effect on humans. Green, is a restful, soothing color. Blue provokes feelings of despondency and depressed nervous activity. Purple, is a dignified color, while yellow, is the warmest, and most pleasant of all. Black, is a sedative. A person trying to live in a room furnished in black, would find that his pulse count would go down —the circulation of his blood would become more sluggish, and he would find it rather hard to become excited, no matter what the provocation might be.

"Among the many finishes that have found wide application on furniture, interior decorations and the many other articles that I mentioned earlier, are first: the so-called antique period finishes. A majority of these are produced with a colored krakle foundation. Thus the Spanish use ivory krakle over brown; red krakle over brown and a light tan krakle. The

Chinese, bright red krakle, jade green krakle, parchment krakle and brown krakle. Early English, is rather restricted brown and parchment krakle. Italian Period finish, is also made on any of these colored krakles. Hand decoration in colors are Decal transfers are used to provide the necessary polychrome effect. Rubbing or glazing is then applied to give the effect of long wear. The result is somewhat as shown on the plates which have been passed out for your observation. There are also some other special plates included which represent furniture finishes now used."

WATERBURY BRANCH

Two applications for membership were received at the last meeting of Waterbury Branch, which was presided over by Past President Wm. Gray. Communication was received from the Salesmen's and Purchasing Agents' Association of America, extending an invitation to attend their exhibit, to be held in Bridgeport Feb. 24 and 25. Quarterly report of Supreme Secretary Gehling was read, and much favorable comment was passed on the thoroughness of same. An invitation was received from the Bureau of Standards, inviting all who were interested in electroplating problems, to attend the conference to be held in Washington, Friday, March 2. Past President Wm. Gray gave an interesting talk on the activities that might be witnessed at the Bureau, and advised all members that could possibly attend to do so. The Quaker City Reminder, is proving quite interesting to the members that attend the meetings, and it is now the duty of the secretary to keep the members informed of the interesting matters contained therein. The March meetings of the Branch are to be particularly interesting, and all members are requested to make a special effort to attend.

WM. F. GUILFOILE.

MILWAUKEE BRANCH

Milwaukee Branch, A. E. S., wishes to announce that it will have a banquet with educational session on Saturday, March 31, at the New Schroeder Hotel, cor. 5th street and Wisconsin avenue. The New Schroeder Hotel is but two blocks from the North Shore R. R. Terminal, also from C. M. St. P. & P. R. R. passenger depot. The educational session will begin at 2:30 P. M., the banquet at 7 P. M.

The general committee consists of Ray Goodsell, chairman; Henry Hurtig, hotels; Bob Stenernagel, master of finance; Jack Geisman, music and entertainment; Librarian Frank Marx, in charge of educational program. Pat Sheehan will preside at educational session.

Librarian Frank Marx has not been able to give details of the educa-

tional session, but has plenty of prospects to add to the present program, as follows:

1. The Protective Value of Coatings of Nickel-Copper and Chromium, by Prof. Edwin Baker, of Michigan University.
2. Antique Finishes on Lighting Fixtures, by Chas. Proctor.
3. One-half Hour's Talk on Plating Room Troubles, by Fred Liscomb. Illustrated with lantern slides.
4. Brass Plating Problems, by Ray Goodsell.
5. Symposium on Chromium Plating, by Paul Signitz, consulting engineer.
6. General Discussion on Chromium Plating by Our Guests.

The banquet will be followed by dancing. The Milwaukee Branch intends to have these banquets every year, if this one is well attended and successful.

MILWAUKEE BRANCH, A. E. S.
D. W.

PITTSBURGH BRANCH

Following is a report of our meeting, held last Saturday evening, February 4, 1928:

Our meeting of Saturday evening, February 4th, was one of the best meetings Pittsburgh Branch has enjoyed for many months. The attraction of the evening, Chromium: Electro-deposition, was presented by Mr. Thomas P. Thomas, Research Chemist of the staff of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Mr. Thomas has this subject well in hand and covered every part in detail, and had plenty of good samples to show the results of the work being done by the Westinghouse Electric & Mfg. Co. He also had anodes and plating racks to illustrate how this work is being done in a successful manner. We had present at this meeting several interested parties, in addition to the regular members of the craft. Mr. Thomas talked chromium for over an hour and a half, after which he answered questions for another hour and those present who are trying to chromium plate went home with plenty of information to work out in their own plants.

Our next meeting, March 3rd, will be in charge of Mr. Harold K. Work, Industrial Fellow, Mellon Institute of Research. Subject: Aluminum: Electrodesposition of Metals on Aluminum. It is hoped that as much interest is shown in this subject and those who have heard Mr. Work at previous times know that he will have something to give them.

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CLEVELAND BRANCH

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can't blame them much, but if they had known what was to be seen at the meeting we would have had a record breaker, all right.

Mr. E. Steen Thompson of the Hayes Mfg. Co., of Erie, Pa., showed us some chromium plating on plumbers' supplies that, in our estimation, was as nice a lot of work as we have ever seen in chromium plating. He also told us how to do it and had photographs of his entire plant and the racks it was done on, just as Mr. Van Devan did at the January meeting. As a good many of our boys are employed in the plumbers' supply business, they certainly missed something that they may have use for, but Mr. Thompson, seeing our poor attendance and also seeing the rain, as he got wet himself, decided to leave the photos with our librarian, Mr. Mullinnix, so that they could be shown at our next meeting, so as not to cheat anyone out of that treat. Now come along, boys, and show him you are interested in his work and you might learn something.

Don't forget to fill out your convention slip, mailed to you some time ago, as the time is up and I will have to send them to our Supreme Secretary after the March meeting.

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PHILADELPHIA BRANCH

The regular monthly meeting of Philadelphia Branch was held February 3rd. The 49 members and visitors present were well rewarded in hearing Mr. Geo. Hogaboom, assisted by Mr. A. K. Graham, give an interesting illustrated lecture on Crystal Structure of Metals, Especially Nickel Anodes.

This was certainly appreciated, as was shown by the applause and rising vote of thanks given Messrs. Hogaboom and Graham at the conclusion of the lecture.

The Educational Committee announced that Mr. Chas. Proctor will address the members at the March (2nd) meeting on Cadmium Plating. We are looking for a large attendance to greet the founder of the A. E. S.

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Members kindly send in the list of manufacturing firms to the secretary as soon as possible.

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CHICAGO BRANCH

The regular monthly meeting of Chicago Branch was held at Atlantic Hotel, February 11th. President Meyers called the meeting to order which found a very good attendance.

Report of Banquet Committee was very favorably received and to show the appreciation of their work, President Meyers appointed the same committee to act as boosters for the convention.

tional session, but has plenty of prospects to add to the present program, as follows:

1. The Protective Value of Coatings of Nickel-Copper and Chromium, by Prof. Edwin Baker, of Michigan University.
2. Antique Finishes on Lighting Fixtures, by Chas. Proctor.
3. One-half Hour's Talk on Plating Room Troubles, by Fred Liscomb. Illustrated with lantern slides.
4. Brass Plating Problems, by Ray Goodsell.
5. Symposium on Chromium Plating, by Paul Signitz, consulting engineer.
6. General Discussion on Chromium Plating by Our Guests.

The banquet will be followed by dancing. The Milwaukee Branch intends to have these banquets every year, if this one is well attended and successful.

MILWAUKEE BRANCH, A. E. S.
D. W.

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The regular routine of business being concluded, the meeting was taken over by the librarian, who found the following questions in the question box.

Ques. 1. We ball burnish small parts shaped like a bowl or spoon which nest together in bunches of 10 to 15, which do not burnish. We use ⅛" balls. Is there any remedy?

Ans. 1. Change speed of barrel; either run faster or slower than present speed, or try using more balls and less work. It was suggested to put a cross-bar in barrel to help break up nesting.

Ques. 2. Would like to know of some cleaner to use instead of gasoline or benzine to remove oil from steel stampings. Potash solution can not be used.

Ans. 2. If parts are small, tumble in sawdust. It was suggested to use 20 per cent Tetracarbon Chloride in benzine which will make it non-inflammable.

Ques. 3. What is a good filler for Udylite to be enameled that will not peel off?

Ans. 3. Several suggestions were offered: 1st, lacquer first; 2nd, bake in oven at 170-180 deg. F.; 3rd, spray with aluminum bronze.

Ques. 4. Will a piece of steel, plated in hot cyanide copper then nickel plated, stand a severe salt spray test?

Ans. 4. Depends entirely on the metal. Good gold-rolled steel will stand the test longer than a piece of steel like a bumper bar. In all cases both the copper deposit and the nickel deposit must be very good.

Ques. 5. What causes nickel deposits to raise or peel when chromium plated? The articles are die casting or white brass. P. H. of solution is 5.8 to 6.1, composed of single and double salts sodium citrate, sodium sulphate, boric and plates very good. The phenomena only shows when chromium is added to the bath.

Ans. 5. Hydrogen was believed to cause the trouble. The Nickel deposit must be soft. P. H. of solution should be about 5.9.

Ques. 6. How can stainless steel be plated nickel or copper?

Ans. 6. Question held open—other branches please help.

That being all the questions in the box and the hour being early, Mr. A. E. Servis, our librarian, read two articles, one on Lacquer, the other on Corrosion of Metal, which were very interesting.

There being no further business, the meeting adjourned at 10:35.

S. J. C. TRAPP, Secy.

HARTFORD-CONNECTICUT VALLEY BRANCH

The January meeting of the Hartford-Connecticut Valley Branch was held on Monday evening, January 23, 1928, at the Hartford Chamber of Commerce.

We had one application for publication, Mr. Apley Austin, Terryville, Conn. As we were unfortunate in having no speaker for the evening, our attendance was small, only eleven members being present.

President Elwin brought in a sample of chromium plate which created much talk and interest. The meeting adjourned at 10:30 P. M.

VERNON GRANT, Secy.

Rochester Branch Annual Banquet and Educational Meeting will be held Saturday, March 17, 1928, at the Powers Hotel from three to twelve p. m.

TORONTO BRANCH

The Toronto Branch held its usual monthly meeting on January 23rd, a large number of members being present, a paper written by Mr. James Welsby of Dartmouth, Nova Scotia, a Toronto member. Cadmium as a base for silver on any metals was read and a very enthusiastic discussion followed, and everybody agreed that it was a very fine effort by Mr. Welsby. Professor J. T. Burt Gerrans of the University of Toronto was unanimously elected honorary member of the Toronto Branch. The professor has long ben a big booster for the A. E. S. and a particular friend and helper to the Toronto Branch ever ready and willing to be of any service and to place his vast knowledge of electro-plating at the disposal of the members.

All members are earnestly requested to send in the list of manufacturers so that advance notices of the convention may be sent to all employers of platers. This action on your part may result in your getting a free trip to Toronto. Do it now with all good wishes. I remain yours truly,

J. ELLIS,
Secretary-Treasurer.

TORONTO BRANCH

To the Branch Secretaries:—
(To be read at next meeting)

The Convention Committee of Toronto Branch wishes to enlist the services of all members of the A. E. S., and friends, in the compilation of an educational program.

Five months remain in which to prepare a paper, five hundred men eager to hear of some helpful idea, will be at this convention.

Members of the society are cordially requested to contribute papers on, Use of Abrasives, Preparation of Work for Plating, Lacquering or Enameling, Cleaning Metals, any class of Electro-plating, particularly Chromium, Cadmium versus Zinc, and Silver, also Metal Colouring, Lacquering and Analysis of Plating Solutions. In fact any subject relative to Metal Finishing. If you cannot write a paper, kindly use your influence to procure one from some one who can. The success of this convention depends largely upon the support given this request.

Send name of author and title of paper to this office before April 1st.

Sincerely yours,
Convention Committee, Toronto Branch,
American Electro-Platers' Society,
W. S. Barrows, Secretary.

CONVENTION FORECASTS

Come on over and drink "Canada Dry."

We want a score of papers full of facts, if facts are scarce, insert opinions well founded on practical experience. But in any event write a paper and let us have title and your name NOW.

Don't stay away from Toronto on account of the kiddies, bring 'em along, we will do our part toward making them happy and comfortable.

Have you a Toronto club started in your town? If not, shake a leg, time is short.

The ladies' program will permit them to snooze, shop or do as they please each morning except the opening day. We cordially request their presence at the opening session. Be sure and bring the ladies.

Make your hotel reservations early. Better do it now.

W. S. BARROWS, Secretary, Convention Committee.

NEWARK BRANCH

Our meeting on January 20th was opened by President Chas. Bohler with 24 members and 3 visitors present. Mr. John A. Hanley, a member of Detroit Branch, was present and desires to be transferred to Newark Branch, as he is now located in Newark. Mr. Hanley, an expert on the deposition of chromium, promises to give a talk on the subject in the near future.

One application was received and ordered to take the usual course.

Banquet committee reports progress.

The supreme secretary-treasurer's financial report was read.

Mr. George B. Hogaboom gave an excellent talk on his trip to the research laboratory of Mr. Harold Work at Mellon Institute, Pittsburgh, Pa., where Mr. Work is doing research work on the nickel plating of aluminum. Mr. Hogaboom stated that too successfully plate upon aluminum, the copper and silicon content in aluminum must be known, in order that the proper dip can be used prior to the deposition of nickel. The coloring of aluminum was described in detail by Mr. Hogaboom and he has promised to give a talk in the near future giving all the formulae for the various dips used prior to nickel-plating aluminum. He witnesed the making of aluminum foil which is now fast replacing tin and lead foil.

Sheet zinc may be annealed by simply immersing in boiling water is one of the many, many bits of information which Mr. Hogaboom imparts to members of the A. E. S. At the meetings he is able to attend, he always gives us a talk on the latest developments in electro deposition and its kindred subjects thus telling us what he knows will be helpful.

ROYAL F. CLARK,
Secretary-Treasurer.

Our February educational meeting was held on the 3rd inst. with President Chas. Bohler in the chair, 27 members and 1 visitor present. One member was reinstated to active membership and 1 elected. Banquet committee, of which Mr. George Onksen is chairman, reports progress.

Mr. John A. Hanley, a member of Detroit Branch, now located in this locality, is transferring to Newark Branch. Visiting our meeting,

he spoke on chromium deposition. In discussion on the cadmium question in the Philadelphia Branch "Platers' Reminder," page 8, he stated that a 10 minute deposit of cadmium at 30 amperes per sq. ft. would resist the salt spray test for 160 hours. Mr. George Sharkey, our reinstated member, gave a talk on his experience in depositing chromium, exhibiting samples having a "chrome" deposit. In the discussion on chromium deposition many good points were brought out as to the preparation of the article prior to plating.

ROYAL F. CLARK, Secy.-Treas.

APPLICATIONS Branch

Chas. Karcher, 1916 Third Ave., New York City.....Newark
Apley Austin, Terryville, Conn.....Hartford-Conn. Valley
Wm. Dougherty, 1309 Noble St., Philadelphia, Pa.....Philadelphia
J. N. Eddows, 4901 Stinton Ave., Philadelphia, Pa.....Philadelphia
Archibald Flemming, 2963 N. Fairhill St., Philadelphia, Pa. Philadelphia
Wm. Bierman, Trenton Brass & Mach. Co., Trenton, N. J.....Trenton
Wm. T. Lewis, 2100 S. 48th Ct., Chicago, Ill.....Chicago
Jacob Chapleck, 2440 Walton St., Chicago, Ill.....Chicago

ELECTIONS

George John Miller, 701 Elizabeth St., Elizabeth, N. J.....Newark
Elmer Peteyoln, 9414 Elmira Ave., Cleveland, Ohio.....Cleveland
Philip John Ruppert .....New York
Byron V. McBride.....Pittsburgh

REINSTATED

George H. Sharkey, 128 West Speedway, Irvington, N. J.....Newark
Wm. Ayton, care of Nash Motors, Kenosha, Wis.....Chicago

SUSPENDED

John Klosterman, 307 Hughes St., Dayton, Ohio.....Dayton
Maddews Kisor, 627 North Ave., Dayton, Ohio.....Dayton
J. H. Garmuly, 324 Grace St., Chicopee Falls, Mass.
.....Hartford-Conn. Valley
T. F. Kennedy .....Hartford-Conn. Valley
Wm. A. McCarthy, 84 Palmer Ave., Springfield, Mass.
.....Hartford-Conn. Valley
H. J. White, 461 Prospect Ave., Hartford, Conn.
.....Hartford-Conn. Valley
Jas. Garde .....Providence
T. S. Dalton .....Providence

DEATHS

Geo. Weigand, 51½ Dabalt St., Providence, R. I.....Providence

TRANSFERS

H. G. Binder, from Chicago Branch to.....Milwaukee

NOTICE OF CHANGE

Milwaukee Branch Banquet to be held March 31, 1928, Schroeder Hotel. Dan Wittig, 376 3rd Street, Milwaukee, Wis., for Tickets and Publicity.

BOSTON

Regular meetings are held first Friday of each month, at 8 p. m., at the Boston Platers' Supply Co., 202 Friend St., Boston. Secretary, A. W. Garrett, 488 Quincy St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary, Wm. Ehrencrona, 872 Hancock Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, S. J. C. Trapp, 1127 N. 7th St., Maywood, Ill.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, Al. Yeager, 2021 Sherman Ave., Norwood, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. H. Terdoest, 380 Pioneer Ave., Akron, Ohio.

HARTFORD-CONN. VALLEY

Meets fourth Monday in each month alternately at 266 Pearl St., Hartford, Conn., and corner Broadway and Worthington St., Springfield. Secretary, Tennant Elwin, 117 Hobart St., Meriden, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Robert G. Suman, 66 Notre Dame Ave., Dayton, Ohio.

DETROIT

Meets the first Friday of each month at the Detroit Testing Laboratory, 554 Bagley Ave., Detroit. Secretary, Chas. Mascola, 2041 Beard Ave., Detroit, Mich.

GRAND RAPIDS

Meets on the second Saturday of each month at the Vocational High School, 129 Bostwick Ave., N. E. Secretary, Jacob Van Dyke, 1361 Union Ave., N. E., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. J. N. Hock, 1229 W. 24th St., Milwaukee, Wis.

MONTREAL

Meets last Friday of month at Office of Secretary, John H. Feelay, 411 Aylmer St., Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at Franklin Hall, 41 Franklin St., Newark, N. J., at 8 p. m. Secretary-Treasurer, Royal F. Clark, P. O. Box 201, Newark, N. J.

NEW YORK

Meets every second and fourth Fridays of each month in the World Building, Park Row, New York City, N. Y. Secretary, R. J. Liquori, 127 Vanderbilt Ave., Brooklyn, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 44 Washington St., Prov. Engineers Rooms, Providence, R. I. Secretary, J. H. Andrews, 19 Rosedale St., Providence, R. I.

ROCHESTER

Meets every third Friday of each month at the Powers Hotel. Secretary S. P. Gartland, 128 Bryan St., Rochester, N. Y.

ST. LOUIS

Meets first Friday of each month at Barr Branch Library, corner Jefferso and Lafayette Sts. Secretary, C. T. McGinley, 5312 West Florisant Ave., St Louis, Mo.

TOLEDO

Meets first Thursday of each month at Toledo Secor Hotel, corner Cherry an Page Sts. Secretary, W. W. Weiker, 2228 Middlesex Rd., Route 2, Box 635, Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Secretary, Jos. Ellis, 938 Ossington Ave., Toronto 4, Toronto, Canada.

WATERBURY

Meets every second and fourth Thursday of each month. Secretary, Wm. F. Cuilfoile, Garden Theatre Bldg., East Main St., Waterbury, Conn.